IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellants: Leonardus Joseph Michael Ruitenberg et al.     Group Art Unit: 2618

Application No.: 10/516,548                                 Examiner: Hu, Rui Meng

Filed: December 2, 2004                                     Confirmation No.: 5731

For: RECEIVER SIGNAL STRENGTH INDICATION


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## REPLY BRIEF UNDER 37 C.F.R. § 41.41 (a)


This is an appeal to the Board of Patent Appeals and Interferences from the decision of the Examiner dated May 13, 2009, which finally rejected claims 1 and 3-6 in the above-identified application. The Office date of receipt of Appellants' Notice of Appeal was July 1, 2009. An Appeal Brief was filed on August 18, 2009. This Reply brief is in response to the Examiner's Answer dated November 25, 2009. This Reply Brief is hereby submitted pursuant to 37 C.F.R. § 41.41(a).

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# I. STATUS OF CLAIMS

Claims 2, 5, and 6 are canceled.

No claims are withdrawn.

No claims are objected to.

No claims are allowed.

Claims 1, 3, and 4 stand rejected as follows:

Claims 1 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsura et al. (U.S. Pat. No. 6,683,925, hereinafter Katsura) in view of Jacques et al. (U.S. Pat. Pub. No. 2002/0048267, hereinafter Jacques).

Claim 3 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Katsura in view of Jacques, in further view of Lampe et al. (U.S. Pat. No. 5,852,772, hereinafter Lampe).

Claims 1, 3, and 4 are the subject of this appeal. A copy of claims 1, 3, and 4 is set forth in the Claims Appendix.

# II. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A.    Whether claims 1 and 4 are patentable over the combination of Katsura and Jacques under 35 U.S.C. § 103(a).

B.    Whether claim 3 is patentable over the combination of Katsura, Jacques, and Lampe under 35 U.S.C. § 103(a).

# III. ARGUMENT

For the purposes of this appeal, claims 1 and 4 are argued together as a group for purposes of the question of patentability over the combination of Katsura and Jacques under 35 U.S.C. § 103(a). Claim 3 is argued separately for purposes of the question of patentability over the combination of Katsura, Jacques, and Lampe under 35 U.S.C. § 103(a).

A.      Claims 1 and 4 are patentable over the combination of Katsura and Jacques
        because the combination of cited references does not teach narrow filter means.

        Appellants respectfully submit that claim 1 is patentable over the combination of
Katsura and Jacques because the combination of cited references does not teach all of the
limitations of the claim.  Claim 1 recites:

> A receiver signal strength indication circuit receiving a discretely controlled amplified signal from an amplifying means (A1-A4), the circuit comprising:
> narrow filter means coupled to an output of the discretely controlled amplifying means (A1-A4), said narrow filter means providing a limited spectrum of the input signal;
> logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter;
> analog-to-digital (ADC) means for converting the output of the logarithmic detector to a digital receiver signal strength indication; and
> memory means to store an amplification setting of the discretely controlled amplifying means relative to a first radio-frequency (RF) input level and the digital receiver signal strength indication, wherein the stored amplification setting is configured to serve as a reference to tune the circuit for a subsequent RF input level.
> (Emphasis added.)

        The "narrow filter means" recited in the claims should be understood to mean a
band-pass filter, for the reasons explained below.  With this proper understanding of the
recited "narrow filter means," the combination of Katsura and Jacques does not teach all
of the limitations because the combination of cited references does not teach a band-pass
filter.


        1.  The "narrow filter means" is a band-pass filter.

        For a proper contextual understanding of the language of the claim, the narrow
filter means recited in the claim specifically refers to a band-pass filter.  There are at least
two reasons why the recited narrow filter means is a band-pass filter, rather than another
type of filter.  First, the term "narrow" within the phrase "narrow filter means" refers to a
specific type of filter, rather than to a general bandwidth range of filter.  Second, to the

extent that the term "narrow" might be construed as a functional description of the bandwidth range of the filter rather than as a specific type of band-pass filter structure, the phrase "narrow filter means" should be interpreted under 35 U.S.C. § 112, sixth paragraph, and specifically corresponds to a structure that implements a band-pass filter, as described in the specification.

a. The narrow filter means refers to a specific type of filter, namely, a band-pass filter.

In the art, there are generally three types of frequency passing filters: low-pass filters, high-pass filters, and band-pass filters. Low-pass filters include a single cut-off frequency, and frequencies above the cut-off frequency attenuate, whereas frequencies below the low-pass cut-off frequency pass through. High-pass filters also include a single cut-off frequency, and frequencies above the cut-off frequency pass through, whereas frequencies below the cut-off frequency attenuate. Hence, the low- and high-pass filters have a single cut-off frequency. These types of filters pass all of the frequencies on one side of the cut-off frequency, while attenuating all of the frequencies on the other side of the cut-off frequency.

In contrast to low- and high-pass filters, a band-pass filter includes two cut-off frequencies. The frequencies between the cut-off frequencies pass through the band-pass filter, whereas the frequencies outside of the band (i.e., below the lower cut-off frequency and above the upper cut-off frequency) attenuate. The presence of two cut-off frequencies defines the "band" of the band-pass filter. The ability to pass frequencies in the band between the cut-off frequencies and attenuate frequencies on both sides of the band is what defines the band-pass filter as a "narrow" filter.

Low- and high-pass filters are not narrow filters, or band-pass filters, because low- and high-pass filters do not define a band that is bounded by multiple cut-off frequencies. Thus, low- and high-pass filters essentially have frequency ranges that are unrestricted (in terms of filtering) on at least one end of the applicable frequency range. More specifically, high-pass filters do not define a narrow band because high-pass filters merely have a single cut-off frequency and, hence, attenuate signals on only one side of the single cut-off frequency. Similarly, low-pass filters do not define a narrow band

because low-pass filters merely have a single cut-off frequency and, hence, attenuate signals on only one side of a single cut-off frequency. Additionally, since there are no signals below zero, there is no need for low-pass filters to implement a second cut-off frequency to attenuate signals below zero. Consequently, in terms of actual filtering capabilities, there is no need for low-pass filters to define a band for which attenuations occur on both sides of the band.

Moreover, to the extent that a low-pass filter passes baseband signals, it should be recognized that baseband signals are simply signals whose frequencies range between zero and the highest frequency passed by the low-pass filter. Although the term "baseband" relates to the bandwidth of signals passed by a low-pass filter, the term "baseband" does not inherently impose any type of limitations on the extent, or range, of the bandwidth that is passed. Rather, a baseband bandwidth is merely the range of frequencies between zero and the highest frequency that is passed by the low-pass filter. For example, if the cut-off frequency is set very high (i.e., much higher than zero), then the baseband bandwidth of the low-pass filter will be very wide. On the other hand, if the cut-off frequency is set very low (i.e., close to zero), then the baseband bandwidth of the low-pass filter will be less wide.

However, even if the baseband bandwidth of a low-pass filter were relatively small, the low-pass filter would nevertheless not be called a narrow filter because the phrase "narrow filter" refers to a type of filter, rather than to the extent of the bandwidth of the filter. In particular, a narrow filter is a band-pass filter, not a low-pass filter. Furthermore, a low-pass filter is not a narrow filter, even though the baseband bandwidth of the low-pass filter may be small. Thus, the general understanding in the art recognizes the distinction between: a 1) narrow type of filter, and 2) a filter with a small bandwidth.

b.      The narrow filter means specifically corresponds to a structure that implements a band-pass filter.

Even if the distinction between band-pass and low-pass filters were disregarded in considering the meaning of a narrow filter, the narrow filter means recited in the claim specifically correspond to a band-pass filter as described in the specification of the present application. Moreover, the phrase "narrow filter means" used in the claim should

be interpreted accorded to 35 U.S.C. § 112, sixth paragraph, as specifically corresponding to a band-pass filter.

Although the USPTO gives claims their broadest reasonable interpretation (MPEP § 2111), the language of § 112, sixth paragraph, sets a limit on how broadly the USPTO may construe means-plus-function language (MPEP § 2181(I) (citing *In re Donaldson Co.*, 16 F.3d 1189 (Fed. Cir. 1994). In general, a claim limitation will be presumed to invoke § 112, sixth paragraph, if the language meets a 3-prong analysis:

(A) The claim limitations must use the phrase "means for" or "step for;"

(B) The "means for" or "step for" must be modified by functional language; and

(C) The phrase "means for" or "step for" must not be modified by sufficient structure, material, or acts for achieving the specified function.

These criteria provide an indication of how § 112, sixth paragraph, is invoked. However, it should be noted that the first criterion may be met, in the alternative, by showing that the claim limitation is written as a function to be performed and does not recite sufficient structure, material, or acts which would preclude application of § 112, sixth paragraph. *Id.* (citing *Watts v. XL Systems, Inc.*, 232 F.3d 877 (Fed. Cir. 2000). In fact, the MPEP provides several examples of cases in which the phrase "means for" or "step for" was not used but it was nevertheless determined that the claim limitation fell within the scope of § 112, sixth paragraph. *Id.* (citing *Signtech USA, Ltd. v. Vutek, Inc.*, 174 F.3d 1352, 1356, (Fed. Cir.1999) ("ink delivery means positioned on ..." invokes 35 U.S.C. 112, sixth paragraph since the phrase "ink delivery means" is equivalent to "means for ink delivery"); and *Ethicon, Inc. v. United States Surgical Corp.*, 135 F.3d 1456, 1463, (Fed. Cir. 1998) ("use of the word means 'gives rise to a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses' ").

Similar to *Ethicon*, the use of the word "means" in the phrase "narrow filter means" of the claim should give rise to the presumption that § 112, sixth paragraph, is invoked. Additionally, as in *Signtech*, the phase "narrow filter means" should be construed as being essentially equivalent to "means for implementing a narrow filter."

By recognizing the similarities of the "narrow filter means" language of the claim and the language of *Ethicon* and *Signtech*, the indicated language of the claim should be considered as meeting an alternative requirement of the first criterion of the 3-prong analysis. The second criterion is also met because the "narrow filter means" recited in the claim is modified by the functional language of "providing a limited spectrum of the input signal." The third criterion is also met because the "narrow filter means" recited in the claim is not modified by any other structure for achieving the specified function. Thus, the presumption of § 112, sixth paragraph, should apply to the indicated language of the claim, namely, the recited "narrow filter means."

Since the "narrow filter means" should be construed according to § 112, sixth paragraph, the "broadest reasonable interpretation" that the Examiner may give the indicated language is based on the structure disclosed in the specification corresponding to the indicated "narrow filter means." MPEP § 2181. In other words, the specification must be consulted to determine the structure corresponding to the function corresponding to the function recited in the claim. MPEP § 2111.01(II) (citing *Donaldson*).

The Federal Circuit explained a two-step analysis for construing means-plus-function limitations. See *Golight Inc. v. Wal-Mart Stores Inc.*, 355 F.3d 1327, 1333-34, (Fed. Cir. 2004). The first step in construing a means-plus-function claim limitation is to define the particular function of the claim limitation. *Id.* (citations omitted). The next step is to look to the specification and identify the corresponding structure for that function. *Id.* (citations omitted).

In the present application, the function of the narrow filter means is recited in the claims as "providing a limited spectrum of the input signal." Also, it should be noted that to the extent that the Examiner intends to construe the term "narrow" as merely referring to a functional bandwidth range (rather than as specifically referring to a band-pass filter), such use of the term "narrow" also may be a corollary function of the narrow filter means. In either case, the function of the narrow filter means is providing a limited or narrow spectrum of the input signal.

Having identified the function of the indicated claim language, the next step is to look at the corresponding structure described in the specification. As explained in Appellants' previous papers, the specification of the present application describes the

narrow filter means as a band-pass filter with " 'narrow' band selectivity." Present Application, page 1, line 20. Also, the specification expressly refers to the narrow filter means as a "bandfilter NF." Present Application, page 3, lines 20-24. Additionally, the graphical depiction within the narrow filter means shown in Fig. 1 depicts the narrow filter means as a band-pass filter, specifically including two cut-off frequencies where the frequency signals above and below the cut-off frequencies are attenuated. Present Application, Fig. 1, NF. Hence, the description in the specification and the illustration in the drawing of the present application are consistent with the general understanding that a narrow filter means is a specific type of filter, namely, a band-pass filter.

2. The combination of Katsura and Jacques does not teach a band-pass filter.

With this understanding that the "narrow filter means" recited in the claim is a band-pass filter (i.e., a narrow filter), it should be clear that the combination of cited references does not teach all of the limitations of the claim because the combination of cited references does not teach a narrow filter means that is a band-pass filter.

For reference, the Office Action relies solely on Katsura as teaching the indicated language of the claim. The Office Action does not rely on Jacques as purportedly teaching the indicated limitation.

Katsura generally relates to a wireless terminal device with a logarithmic amplifier to detect a level of a baseband signal at an input of a variable gain amplifier. Katsura, abstract. In other words, Katsura expressly teaches a logarithmic amplifier receiving a baseband signal. As described above, a baseband signal corresponds to a low-pass filter. In fact, Katsura explicitly describes that a logarithmic amplifier 11 receives a baseband signal from the output of a low-pass filter 7. Katsura, page 5, lines 5-17; illustrated in Figs. 1, 3, 5, 7, 11, 15, and 16.

The Examiner asserts that the low-pass filter 7 of Katsura teaches a narrow filter, as recited in claim 1 of the present application. Office Action, 5/13/09, page 4. Additionally, the Examiner states that the low-pass filter 7 of Katsura is purportedly a narrow filter because the low-pass filter 7 passes baseband signals. Advisory Action, 6/22/09, page 2, lines 3-4. However, despite the Examiner's assertions, the low-pass filter of Katsura is not a narrow filter because a low-pass filter is a different type of filter.

Specifically, the low-pass filter of Katsura is <u>not a band-pass filter</u>. Hence, the low-pass filter 7 of Katsura is <u>not narrow filter means,</u> as recited in the claim.

Additionally, it should be noted that Katsura separately teaches a band-pass filter 4. Katsura, col. 1, lines 33-45; illustrated in Figs. 1, 3, 5, 7, and 11. However, Katsura does not describe the logarithmic amplifier 11 receiving or logarithmically amplifying an output of the band-pass filter 4. <u>Id</u>. In fact, as displayed in the Figs. 1, 3, 5, and 7 of Katsura, the band-pass filter 4 is separated from the logarithmic amplifier 11 by at least a quadrature mixer 5 and an amplifer 6. Katsura, col. 5, lines 5-17; illustrated in Figs. 1, 3, 5, and 7. Since the logarithmic amplifier 11 of Katsura receives the output of the low-pass filter 7, instead of the output from the band-pass filter 4, Katsura does not teach receiving or logarithmically amplifying an output of the band-pass filter 4, as recited in the claim. Therefore, the band-pass filter of Katsura also fails to teach a logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter, as recited in the claim.

For the reasons presented above, the combination of Katsura and Jacques does not teach all of the limitations of the claim because Katsura does not teach narrow filter means as a band-pass filter, as recited in the claim. Accordingly, Appellants respectfully assert claim 1 is patentable over the proposed combination of Katsura and Jacques.

Claims 3 and 4 depend from and incorporate all of the limitations of independent claim 1. Appellants respectfully submit that dependent claims 3 and 4 are also patentable over the combination of cited references based on an allowable base claim. Additionally, claims 3 and 4 may be allowable for further reasons. Accordingly, Appellants request that the rejection of claim 1, 3, and 4 under 35 U.S.C. § 103(a) be withdrawn.

B.    <u>Claim 3 is patentable over the combination of Katsura and Jacques because the combination of cited references does not teach all of the limitations of the claim.</u>

Claim 3 depends from and incorporates all of the limitations of independent claim 1. Appellants respectfully submit that dependent claim 3 is also patentable over the combination of cited references based on an allowable base claim. Additionally, claim 3 may be allowable for further reasons. Accordingly, Appellants request that the rejection of claim 3 under 35 U.S.C. § 103(a) be withdrawn.

## IV. CONCLUSION

For the reasons stated above, claims 1, 3, and 4 are patentable over the cited references. Thus, the rejections of claims 1, 3, and 4 should be withdrawn. Appellants respectfully request that the Board reverse the rejections of claims 1, 3, and 4 under 35 U.S.C. § 103(a) and, since there are no remaining grounds of rejection to be overcome, direct the Examiner to enter a Notice of Allowance for claims 1, 3, and 4.

At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account **50-4019** pursuant to 37 C.F.R. 1.25. Additionally, please charge any fees to Deposit Account **50-4019** under 37 C.F.R. 1.16, 1.17, 1.19, 1.20 and 1.21.


Respectfully submitted,

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# V. CLAIMS APPENDIX

1.      A receiver signal strength indication circuit receiving a discretely controlled amplified signal from an amplifying means (A1-A4), the circuit comprising:

       narrow filter means coupled to an output of the discretely controlled amplifying means (A1-A4), said narrow filter means providing a limited spectrum of the input signal;

       logarithmic detector means for receiving and logarithmically amplifying an output of the narrow filter;

       analog-to-digital (ADC) means for converting the output of the logarithmic detector to a digital receiver signal strength indication; and

       memory means to store an amplification setting of the discretely controlled amplifying means relative to a first radio-frequency (RF) input level and the digital receiver signal strength indication, wherein the stored amplification setting is configured to serve as a reference to tune the circuit for a subsequent RF input level.


2.      (canceled)


3.      An integrated tuner comprising a receiver signal strength indication circuit as claimed in claim 1, wherein the amplifying means (A1-A4, SF1, SF2, M) include selectivity filtering means (SF1, SF2) connected between the discretely controlled amplifying means and the logarithmic detector means.


4.      An integrated tuner comprising a receiver signal strength indication circuit as claimed in claim 1, wherein the amplifying means (A1-A4, SF1, SF2) include a mixer (M).

5.      (canceled)


6.      (canceled)